Utilizing Performance Mechanisms to Support Priority Regulatory Outcomes

Illinois Commerce Commission
Performance and Tracking Metrics Workshop #2
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What's on deck

Presentation Overview

- Performance and tracking metric design considerations
- Examples of performance and tracking metrics for relevant regulatory outcomes
- Hawaii's recently adopted performance and tracking metric portfolio

  Discussion

- Principles for guiding performance metric and incentive development

Performance and tracking metric design considerations

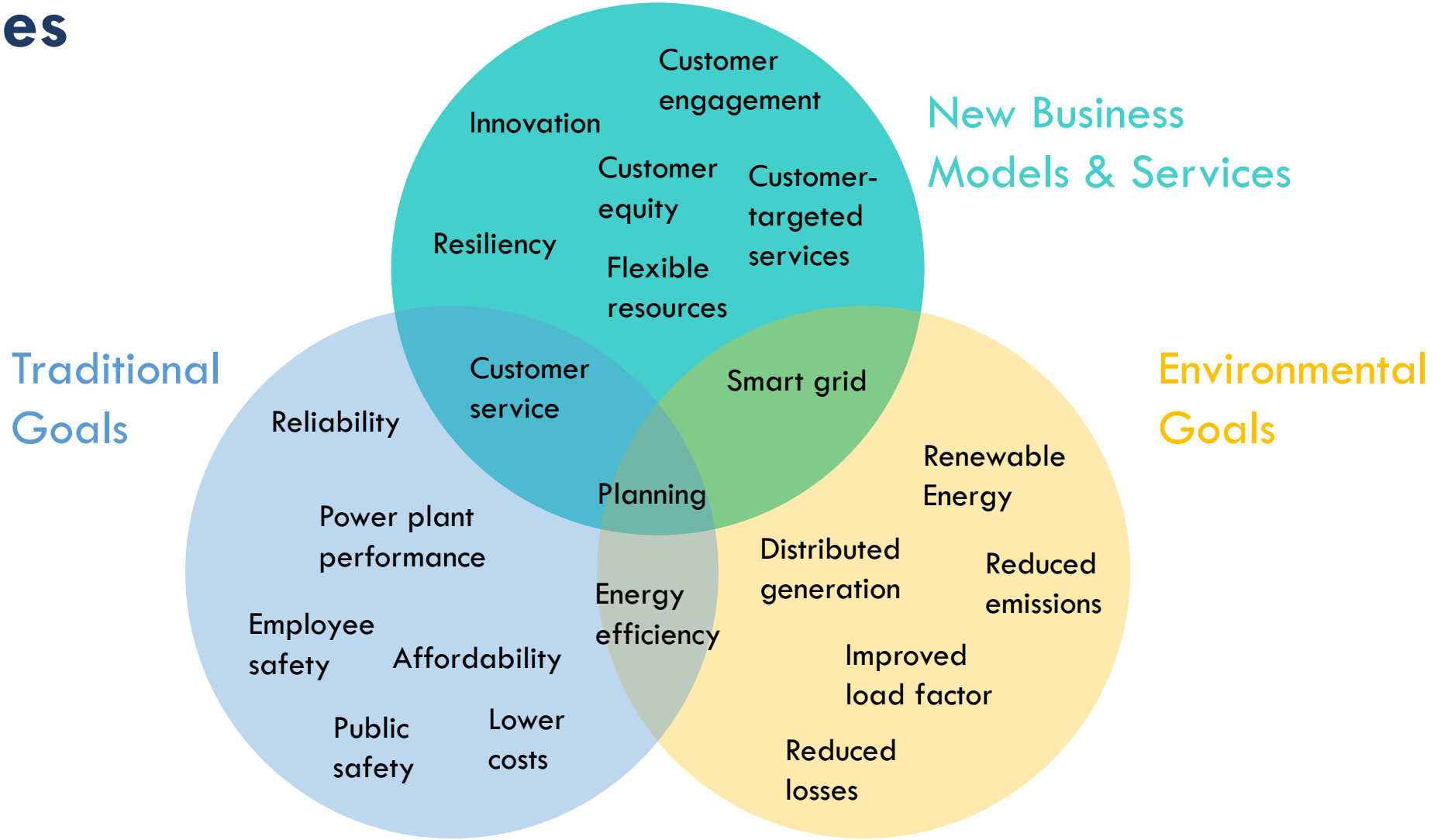
Different metric types may be warranted depending on data availability and desired utility actions

Metric Type	Description	Examples for Peak Demand Reduction
Activity-based	• Track specific utility actions or decisions • Could be helpful if direct measurement of an outcome is not possible • May not support development of effective programs	• Number of marketing materials announcing a time-varying rate sent to customers • Percentage of households with advanced meters installed
Program-based	• Measure performance of specific utility programs • Can be easier to measure than system-level metrics • May not result in most cost-effective utility actions to achieve outcome • Are more likely to interact and overlap with each other	• Percentage of households enrolled in a time-varying rate • MW of load participating in a demand response program
Outcome-based	• Focus on whether an outcome is achieved • Cost recovery for all utility actions may not be guaranteed • May be difficult to determine whether utility actions or external factors have led to desired outcomes	• MW of total system peak demand reduction

Source: RMII (2020). *PIMs for Progress: Using Performance Incentive Mechanisms to Accelerate Progress on Energy Policy Goals.*

Performance and tracking metrics for relevant regulatory outcomes

Metrics can be used to measure and make visible utility performance across a wide range of regulatory outcomes



Adapted from: Synapse (2015). Utility Performance Incentive Mechanisms; A Handbook for Regulators.

GHG emission metrics often track absolute emissions or emissions intensity

Metric	Metric Formula Options
SO_2 Emissions	Tons, Tons/year, lbs/kWh
Average NOx Rate	lbs/MMBtu
Total Criteria Pollutant Emissions	Total pollutants emitted/year
Total Criteria Pollutant Emissions Intensity	Total pollutants emitted/MWh
GHG Emissions (CO_2, Methane, SF_6, etc)	Tons/year; Tons/customer
CO_2 Emissions Intensity	CO_2 tons/MWh; grams/kWh
Fossil Carbon Emissions Rate	Tons/MWh fossil generation
Emissions Avoided by Electrification of Other Sectors	Tons/year

DER metrics often track interconnection timeliness, deployment, and utilization

DER Utilization

- DERs capable of providing grid services
- DERs enrolled in grid services program
- DERs being utilized for grid services
- DERs being curtailed
- Savings from non-wires solutions
- MWh sold back to utility

DG Deployment

- Number of installations per year
- Number of customers / MW participating in net metering or similar tariffs
- MW installed by type (PV, CHP, small wind, etc.)
- MWh generated as % of sales

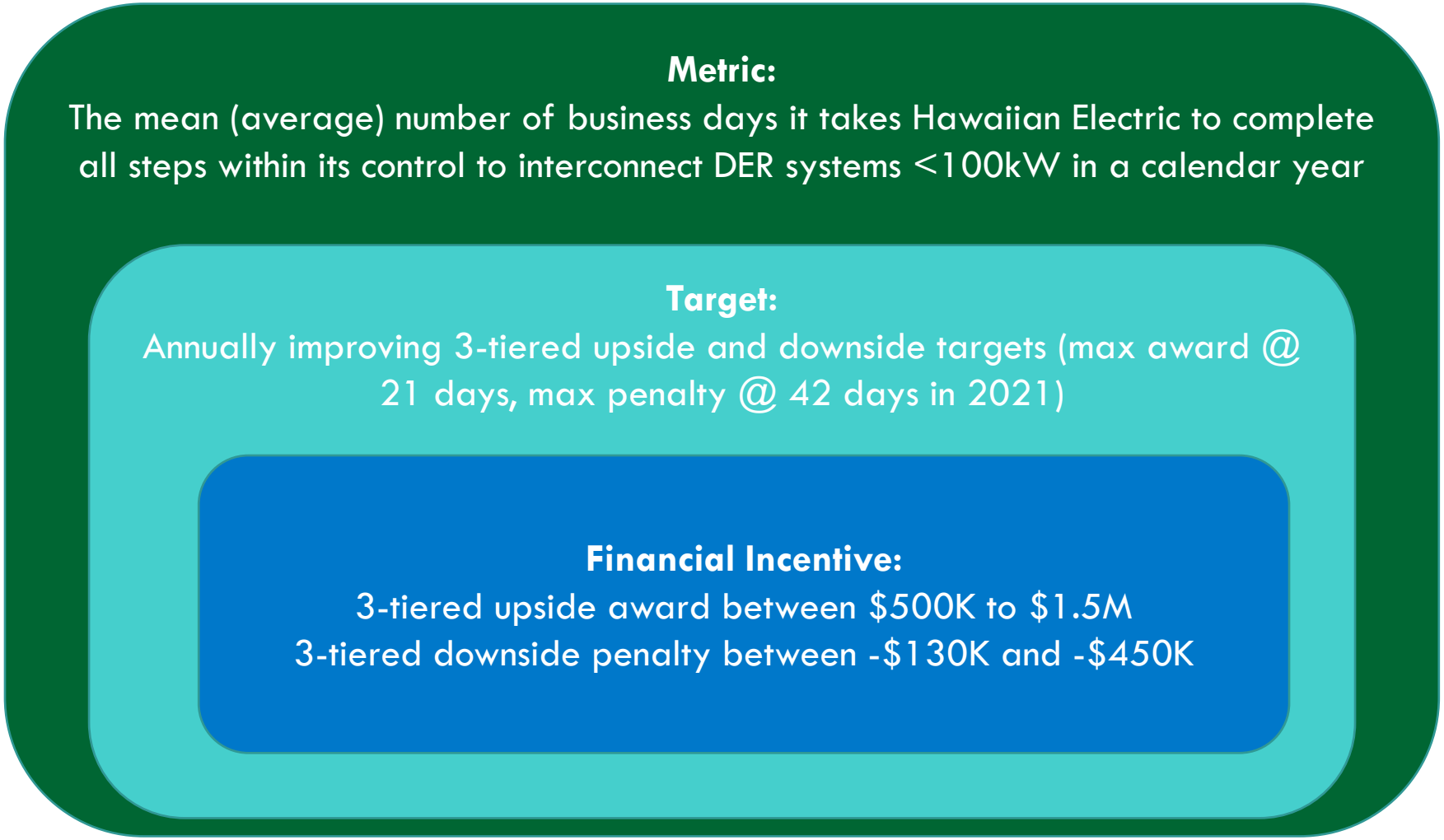
Ease of Interconnection

- Average interconnection time (days within the utility's control)
- Customer satisfaction survey responses

Storage Deployment

- Number of installations per year
- MW installed capacity by type (battery, thermal, etc.)
- MWh installed capacity as % sales

Hawaiian Electric: DER Interconnection Approval PIM



- "Interconnect" is defined as energization of a customer's system.
- The average is adjusted such that interconnection times more than 2 S.D.s above unadjusted average are made equal to 2 S.D.s.

Demand-side and EE metrics often track program participation, energy, and demand savings

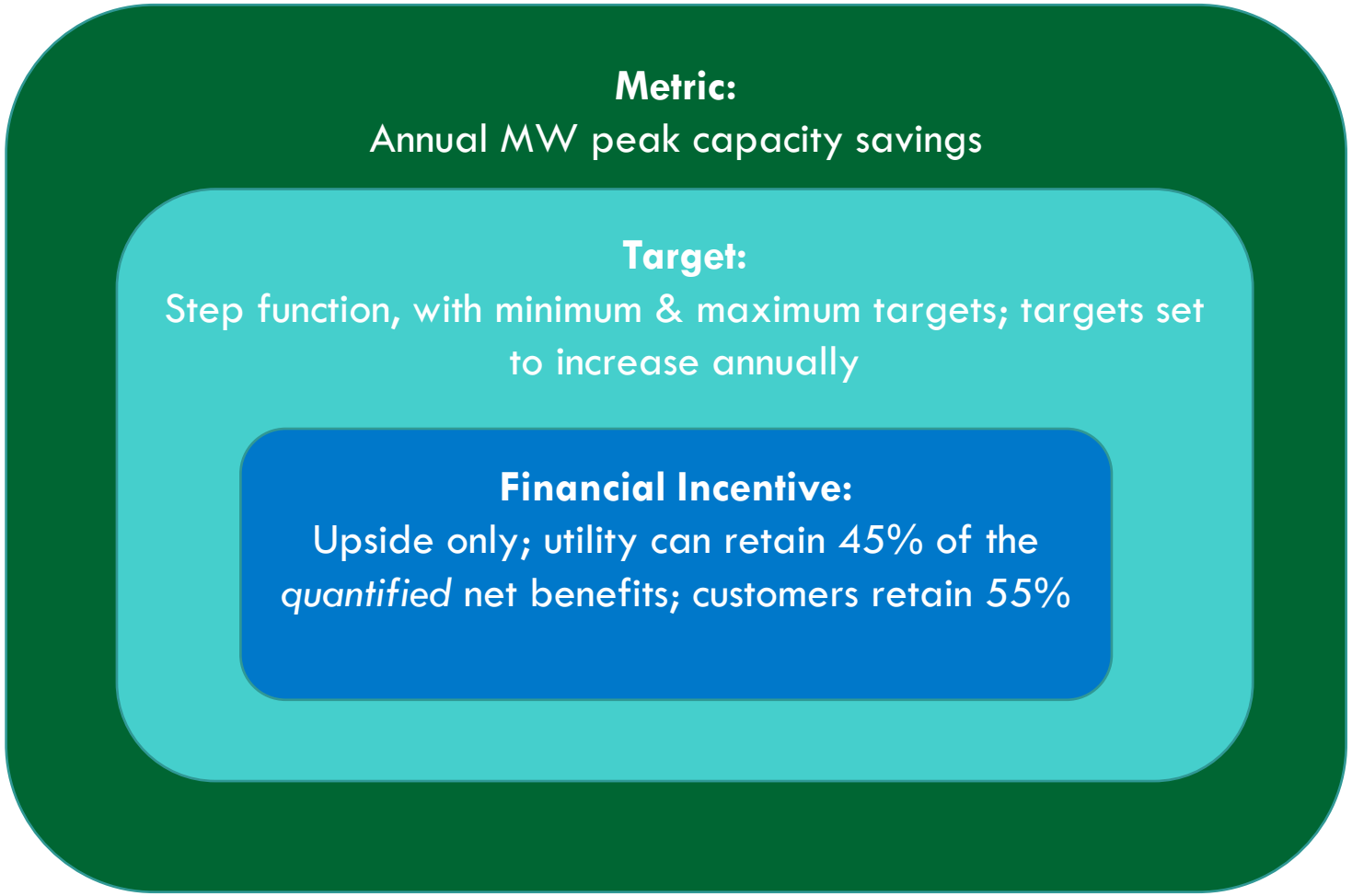
Energy Efficiency

- Annual and lifetime MWh energy efficiency savings
- Program costs per MWh energy saved
- EE Resource Standard (EERS) achievement
- Number and percent of customers participating in EE programs

Demand Flexibility

- Number and percent of customers participating in DR programs
- MW participating in DR programs
- Annual demand reduction as % of load
- Annual and lifetime peak demand savings (MW)
- Amount of DR that shapes, shifts, and sheds load

National Grid, Rhode Island: System Efficiency Incentive



- The maximum allowed annual earnings increase annually starting at $450,000 in 2019 and now at $945,000 for 2021.
- Parties given opportunity to define unquantified benefits for future inclusion in the PIM.

There is a wide scope of metrics that can focus on affordability and customer equity

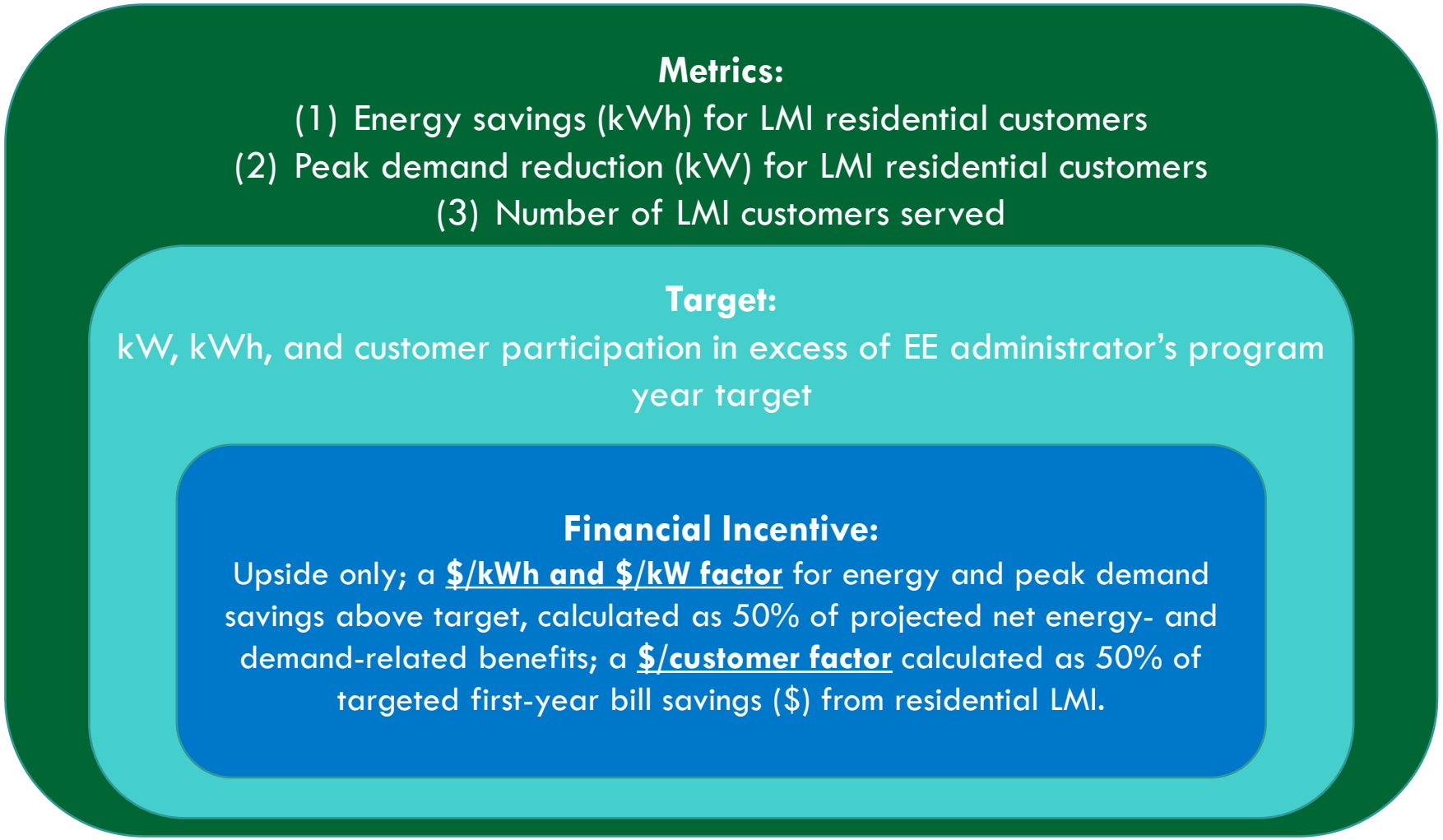
Affordability

- Average monthly residential bill
- Average monthly residential bill as a percent of annual income from low-income families
- Percent of residential customers by payment status / in arrears / disconnected for non-payment
- O&M / rate base per customer / MWh
- Energy / capacity costs per customer / MWh / MW

Customer Equity

- Number / percent of customers that are LMI participating in DER or EE programs
- Number / percent of customers that are LMI accessing customer portals
- EV charging infrastructure installed in LMI communities
- Reliability in targeted communities

Hawaiian Electric: Low-to-Moderate Income (LMI) Energy Efficiency PIM



- Intended to incentivize the utility to more effectively collaborate with the EE administrator to increase energy, demand, and bill savings for LMI customers.
- Capped at $2 million.

Hawaii's recently adopted performance and tracking metric portfolio

Hawaii's recent PBR developments

- Adopted **5 new PIMs** in addition to existing Reliability and Customer Service PIMs. New PIMs focused on:
  1. DER Interconnection Approval
  2. LMI Energy Efficiency
  3. AMI Utilization
  4. RPS Acceleration
  5. DER Grid Services
- Established 22 Reported Metrics and 15 Scorecards and across 11 Outcomes

11 Outcomes Prioritized
Affordability*
Capital Formation
Cost Control
Customer Engagement*
Customer Equity*
DER Asset Effectiveness*
EoT
GHG Reduction*
Grid Investment Efficiency*
Interconnection Experience*
Resilience*

Hawaii: Affordability & Customer Equity

Affordability Metrics	
LMI Energy Burden	Schedule R typical and average annual bill as a percentage of low-income average income, by island
Payment Arrangement	Percent of customers entered into payment arrangements by zip code
Disconnections	Percent of disconnections for non-payment by customer class by zip code

Customer Equity Metric	
LMI Program Participation	Number of LMI customers participating in TOU rates, community based RE, DER, and DR, and percentage of program participants in program that are LMI

Hawaii: DER Interconnection & DER Asset Effectiveness

DER Interconnection Metric		Target
Total DER Interconnection Time	Average total number of calendar days to interconnect DER systems <100kW in a calendar year	2021: 115 business days 2022: 100 business days 2023: 85 days

DER Asset Effectiveness Metrics	
DER Grid Services Capability	Percentage and total MW of DER systems capable of providing grid services
DER Grid Services Enrollment	Percentage and total MW of capable DER systems enrolled in grid services programs
DER Grid Services Utilization	Percentage and total MW of DER systems enrolled in grid services programs that are being utilized to provide grid services
DER Curtailment	Total MW and MWh of curtailment from DERs, including partial curtailment or power reductions

Hawaii: GHG Emissions & Grid Investment Efficiency

GHG Emissions Metrics		Target
GHG Emissions	GHG emissions in CO2e emissions per year in metric tons, reflecting emissions that both include and exclude biogenic CO2e	A straight-line reduction from 2019 GHG emissions to the 2045 target of carbon neutrality
GHG Intensity	Emissions intensity in CO2e per year in grams/kWh, reflecting emissions that both include and exclude biogenic CO2e.	A straight-line reduction from 2019 carbon intensity levels to the 2045 target of carbon neutrality

Grid Investment Efficiency Metrics	
Avoided T&D Investment	Total value ($) of deferred and/or avoided T&D capital investments due directly to the installation or acquisition of an NWA, reported annually by T&D capital investment with a description of the NWA that enabled the deferral, by service territory
NWA Total Cost	Total cost ($) of NWAs deployed by the utility or acquired through a program or procurement, which are owned or operated by the Companies or third-party that defers or avoids T&D capital investment reported annually by capital investment and service territory

Hawaii: Customer Engagement & Resilience

Customer Engagement Metrics		Target
Program Participation	Number and percent of customers participating in community-based RE projects, DER programs, and DR programs, including any existing DR programs.	30% of customers
Green Button Connect My Data	Number and percent of customers that have used Green Button Connect My Data to enable sharing of information	Equal to the percent of all customers with advanced meters installed
Green Button Download My Data	Number and percent of customers that have used Green Button Download My Data	
TOU Participation	Number and percent of customers participating in time-varying tariffs, by customer class	
AMI Opt-Out	Percentage of customers opting out of advanced meters	

Resilience Metrics	
Critical Load	Total amount of time that critical loads are without power in a year
NIMS Certification	Total number of employees completing National Incident Management System Incident Command System 100, 200, and 300 certifications
Emergency Response Training	Total number of employees that have attended emergency response training, annually

Hawaii is now entering a new phase of performance incentive development

- Grid Reliability / Adequacy of Supply
- Timely Retirement of Fossil Fuel Generation Units
- Interconnection of Large-Scale Renewable Energy Projects
- Cost Control for Fossil Fuel, Purchased Power, and Other Non-ARA(Annual Revenue Adjustment) Costs
- Expedient Utilization of Grid Services from Demand-Side Resources

Principles for performance metrics and incentive development

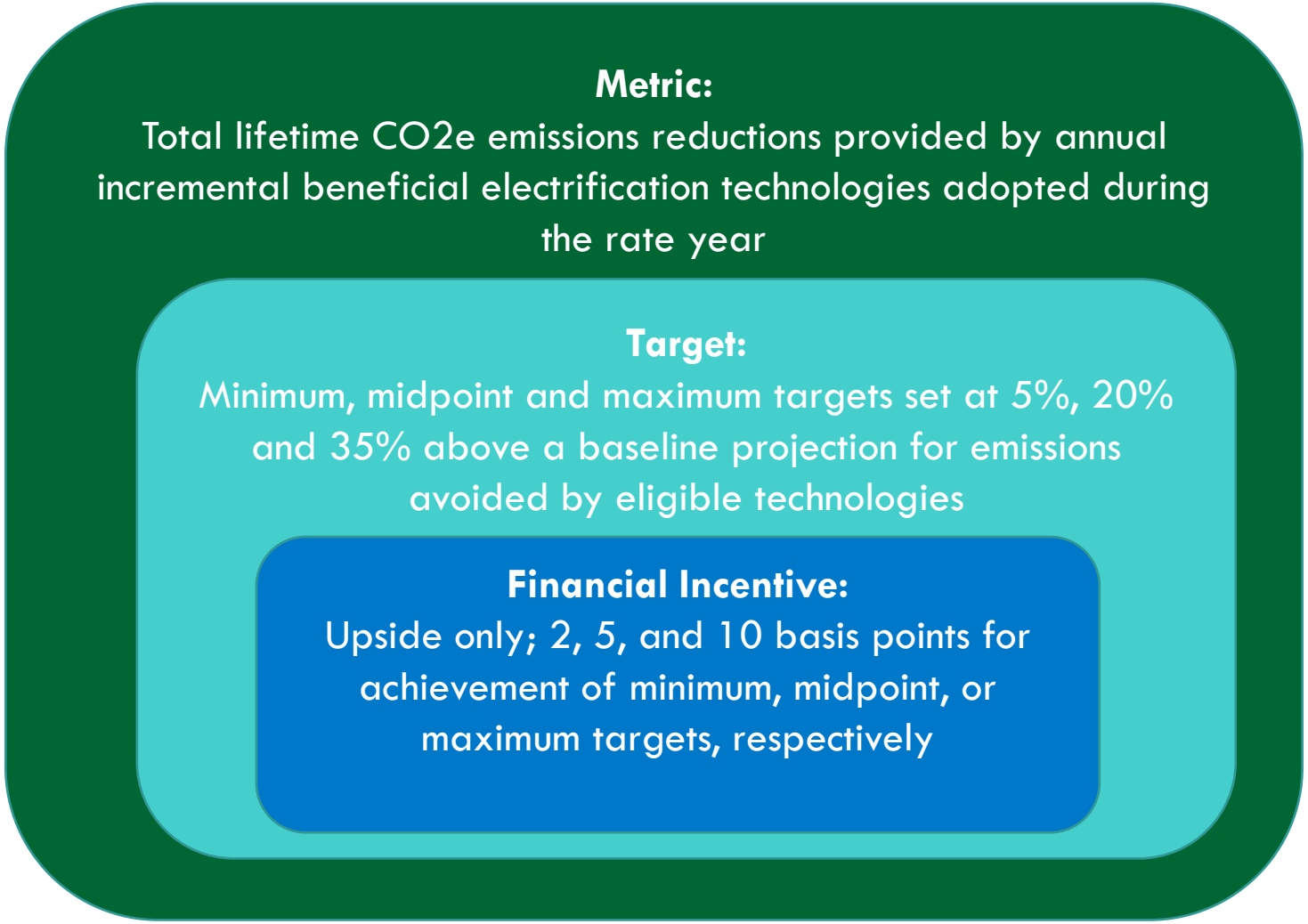
Principles adopted in other jurisdictions to guide performance mechanism development

- Performance metrics and incentives should:
  - Be clearly defined
  - Be easily quantified, interpreted, and verified
  - Align with public policy goals
  - Maximize customers' share of net benefits
  - Be considered when the utility lacks incentive or has disincentive to align performance with public interest
  - Not overlap with existing incentives, obligations, or requirements
  - Include informed targets based on historical data or policy goals
  - Avoid gaming and unintended consequences
  - Offer the utility no more than necessary to align utility performance with the public interest
  - Focus on outcomes where possible rather than inputs

Appendix

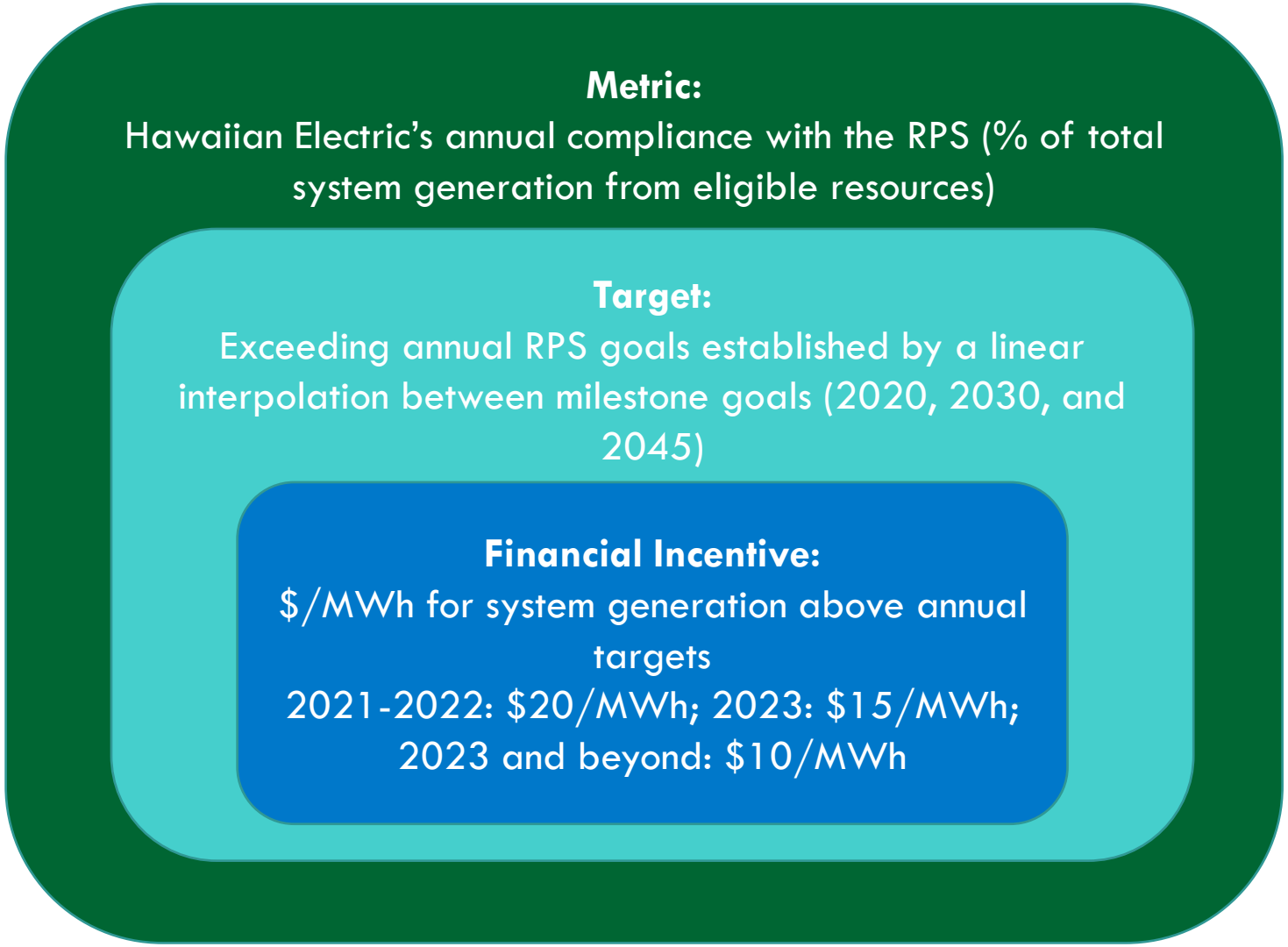
ConEdison: Beneficial Electrification ("BEEL") earnings adjustment mechanism (EAM)

- Eligible technologies:
  - Battery and plug-in hybrid EVs
  - EV buses
  - Medium & heavy duty EVs
  - Air- and ground-source heat pumps and mini-splits



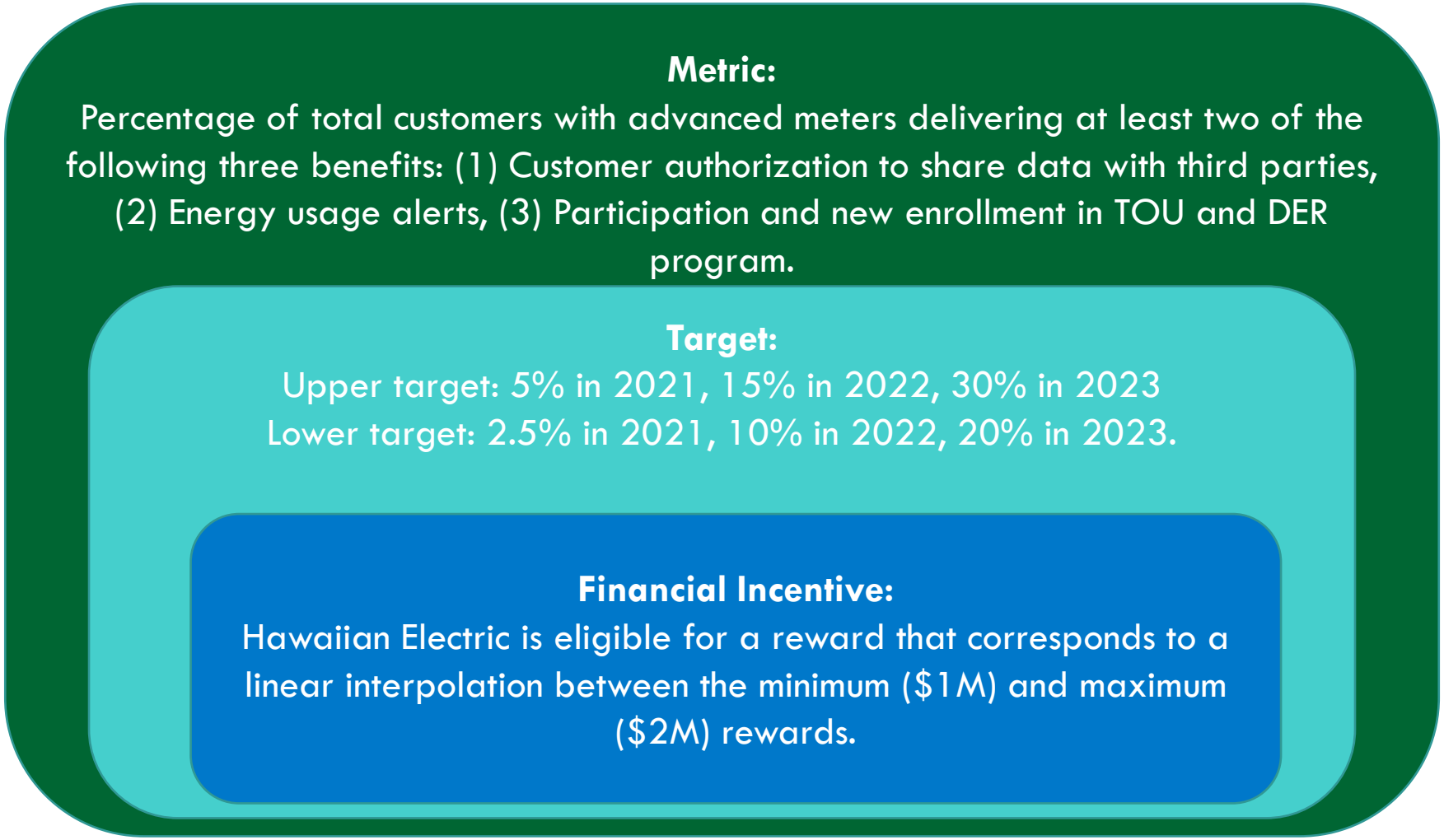
Hawaiian Electric: "RPS-A" PIM

- Penalty already established in statute and only assessed in milestone years
- "Intended to reward *exemplary performance*"

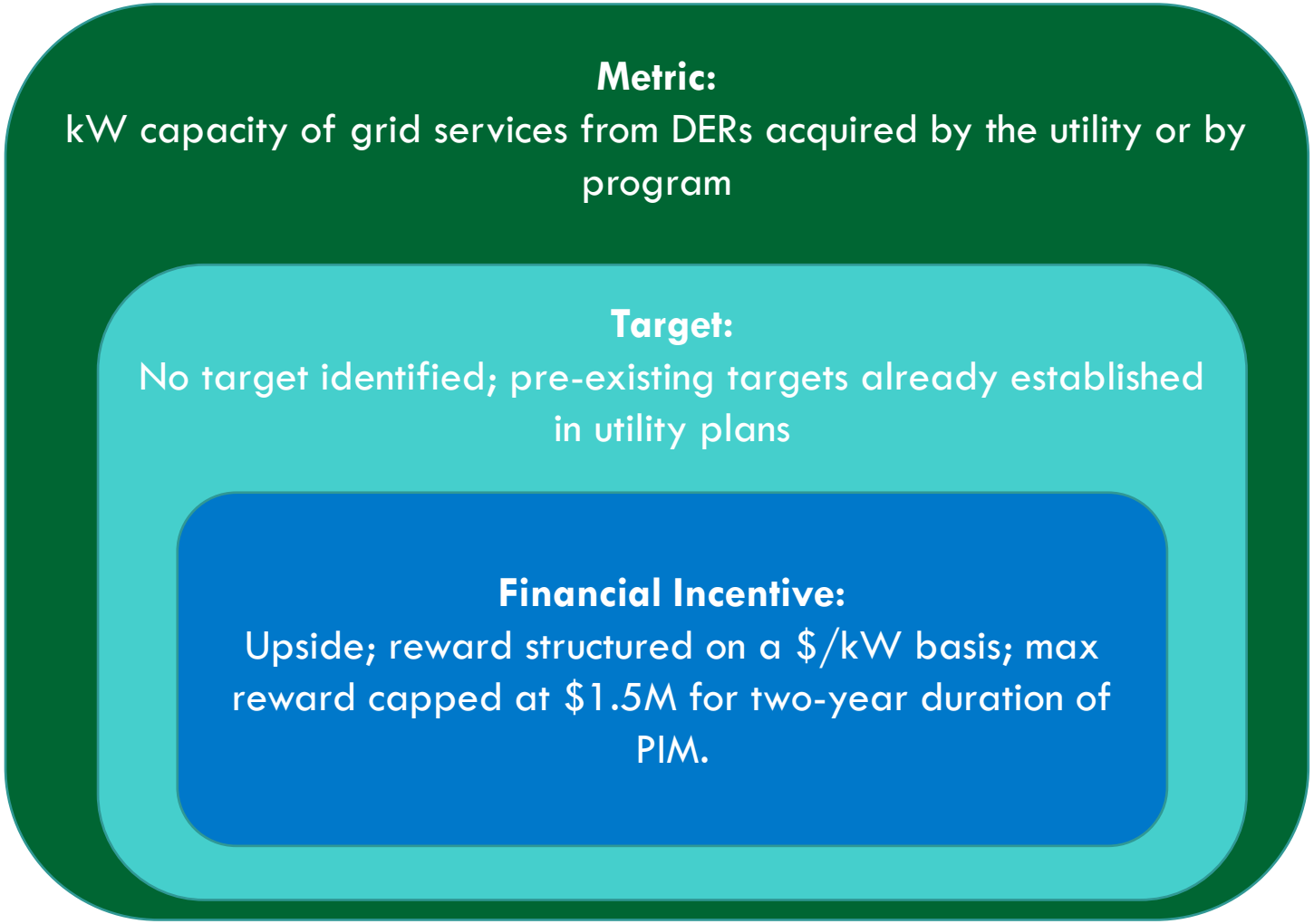


Hawaiian Electric: AMI Utilization PIM

- This PIM is focused on encouraging Hawaiian Electric to begin utilizing AMI as they are scaling deployment.



Hawaiian Electric: DER Grid Services PIM



- Eligible grid services include Fast Frequency Response, load build, and load reduction.
- Intended to be a short duration PIM that will be replaced with a refined PIM incentivizing utilization of DERs for grid services after two years.
- PUC and PBR stakeholders are currently deliberating appropriate metrics and data to measure DER utilization for replacement PIM.

Thank you!